UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,097	10/31/2001	Bogdan Jakobik	2585-000008	9329

27572 7590 05/19/2006

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER	
LEE, DAVID J	
ART UNIT	**PAPER NUMBER**
2613	

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

9

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

MAILED

MAY 19 2006

GROUP 2600

Application Number: 10/004,097
Filing Date: October 31, 2001
Appellant(s): JAKOBIK ET AL.

Timothy D. MacIntyre
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on 01 March 2006 appealing from the Final Office action mailed on 05 October 2005 and the subsequent Advisory action mailed on 03 February 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: the grounds of rejection is under 35 U.S.C. 103(a).

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-5, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamoto et al (US Patent No. 6,738,181) in view of Applicant's admitted prior art.

Regarding claim 1, Nakamoto teaches an optical sending apparatus (108 of fig. 7; line 45) being constituted in a layered member relationship that defines at least two optical layers (e.g., see fig. 7: the layer between MUX 144-1 and MUX 144-6 and the layer between MUX 144-6 and MUX 144-8; see also col. 13, lines 16-18 and 121-1 to 121-m of fig. 4). The apparatus comprises: an optical transport line (fig. 7, along 102-1) operable to carry an optical system signal; multiplexing components (fig. 7, 144-1 to 144-8) operable to receive a plurality of optical data signals (fig. 7, 141-1 to 141-15) to form an optical system signal and launch the optical system signal into the optical transport line (fig. 7, 102-1); and a plurality of signal impairment compensation mechanisms operable across each of the optical layers (fig. 7, 142-1 to 142-15). Nakamoto also discloses performing impairment compensation on each of the plurality of data signals (fig. 7: 142-1, 142-2, 143-1, 142-4, etc.; note that amplification is a form of impairment compensation), on each of the plurality of intermediate band signals (fig. 7: 142-6, 142-8, 142-10), and on the system signal (fig. 7: 145). Nakamoto does not expressly disclose performing dispersion compensation on each of the plurality of sub-band signals (although compensation is

performed on the signals coming out of MUXs 144-1 and 144-5 in the sub-band layer, the signals coming out of MUXs 144-2 and 144-4 are not shown to have compensation mechanisms). However, as Nakamoto performs compensation on each of the signals in the band layer and the system layer, one of ordinary skill in the art would have been motivated to perform compensation on each signal in the sub-band layer as well in order to amplify and provide dispersion compensation so as to boost the signal and to eliminate any undesirable dispersion effects. It would have been obvious to one of ordinary skill in the art at the time of invention to perform dispersion compensation on the signals exiting MUXs 144-2 and 144-4 in the same way that Nakamoto performs compensation on the signals exiting MUXs 144-3, 144-6, 144-7, and 144-5 in order to provide healthier signals and to reduce undesirable dispersion effects.

Nakamoto does not expressly disclose that the signal impairment compensation mechanisms include dynamic gain flattening and optical transient suppression. However, it is notoriously well known in the art to apply techniques such as optical transient suppression, dispersion compensation, and dynamic gain flattening to optical signals (paragraph 0019 of Applicant's specification). One of ordinary skill in the art would have been motivated to include optical transient suppression, dynamic gain flattening, and dispersion compensation to the signals of Nakamoto in order to provide sufficient optical power for long-haul communication and for equalization at each layer. It would have been obvious to one of ordinary skill in the art at the time of invention to apply these techniques to each of the signals of Nakamoto in order to provide healthier and more accurate signals.

Regarding claim 3, Nakamoto teaches a set of multiplexers (fig. 7, 144-1 to 144-8) operable to receive the plurality of optical data signals (fig. 7, 141-1 to 141-15) and combine the

plurality of optical data signals to form a plurality of intermediate optical signals, and a system level multiplexer (fig. 7, 144-8) operable to receive the plurality of intermediate optical signals and combine the plurality of intermediate optical signals to form the optical system signal (to be transmitted along line 102-1).

Regarding claim 4, Nakamoto teaches that the signal impairment compensation mechanisms are positioned at one or more inputs associated with the set of multiplexers (fig.7, see, e.g., compensation mechanism 142-3), at one or more inputs to the system level multiplexer (fig. 7, 142-6, 142-10), and at an output of the system level multiplexer (col. 16, lines 53-56 and fig. 7, 145).

Regarding claim 5, Nakamoto teaches a method for transporting optical signals in an optical transport network, comprising: receiving a plurality of optical data signals (fig. 7, 141-1 to 141-15); performing signal impairment compensation on each of the plurality of optical data signals (fig. 7, 142-1,2,4,5,7,9,11,12,14,15, 143-1 to 143-5); selectively combining the plurality of optical data signals to form a plurality of intermediate optical signals (the signals coming out of MUXs 144-3, 144-6, and 144-7 are the intermediate band signals); performing signal impairment compensation on each of the plurality of intermediate optical signals (142-6, 142-8, 142-10); combining the plurality of intermediate optical signals to form an optical system signal (fig. 7, 144-8); and launching the optical system signal into the optical transport network (fig. 7, 102-1)

Nakamoto does not expressly disclose that the signal impairment compensation mechanisms include dynamic gain flattening and optical transient suppression. However, it is well known in the art to apply techniques such as optical transient suppression, dynamic gain

flattening and dispersion compensation to the optical signals (paragraph 0019 of Applicant's specification; note also that in Fig. 7, Nakamoto performs dispersion compensation on a plurality of signals on a plurality of layers). One of ordinary skill in the art would have been motivated to include optical transient suppression, dynamic gain flattening and dispersion compensation to the signals of Nakamoto in order to provide sufficient optical power for long-haul communication and for equalization at each layer. It would have been obvious to one of ordinary skill in the art at the time of invention to apply these well known techniques of optical transient suppression, dynamic gain flattening and dispersion compensation on each of the signals of Nakamoto in order to provide healthier and more accurate signals.

Regarding claim 11, Nakamoto teaches a step in performing signal impairment compensation on the optical system signal (col. 16, lines 53-56 and fig. 6, 132).

(10) Response to Argument

Applicant argues that Nakamoto fails to disclose signal impairment compensation on each of the data signals (see pg. 4 of Appeal Brief, middle paragraph). Applicant asserts that "amplification is not a form of impairment compensation as recited in Applicant's claimed invention." However, the rejection is not rejected under Nakamoto alone, but rather, Nakamoto is used in combination with Applicant's admitted prior art. Applicant's arguments are directed against Nakamoto individually while the rejection is based on a combination of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Furthermore, Applicant argues that performing dispersion compensation on data signal 141-3 of Figure 7 will "adversely effect polarization crossing objectives." Applicant insists that "performing a signal impairment compensation of this signal may cause it to interact with adjacent signals" (see Appeal Brief, pg. 5, line 4). Applicant then concludes that Nakamoto teaches away from performing dispersion compensation on this signal. However, it is noted that the arguments or conclusions of the attorney cannot take the place of evidence. See *In re Cole*, 51 CCPA 919,326 F.2d 769, 140 USPQ 230 (1964); *In re Schulze*, 52 CCPA 1422, 346 F.2d 600, 145 USPQ 716 (1965); *Meitzner v. Mindick*, 549 F.2d 775, 193 USPQ 17 (CCPA 1977). Applicant's insistence that performing dispersion compensation could "adversely effect polarization crossing objectives" is merely Applicant's own opinion and interpretation of Nakamoto, and it is noted that no supporting evidence has been provided. Accordingly, Examiner maintains the position that it would have been obvious to a skilled artisan to provide dispersion compensation to data signal 141-3 in order to compensate for undesirable dispersion effects so as to increase signal quality.

Applicant also argues that "Nakamoto does not contemplate switching of optical signals at any of the intermediate layers" (see Appeal Brief, pg. 5, 1st full paragraph). The claims do not mention or even suggest that the system is in a switching environment and therefore the claim language is reasonably interpreted as being independent of such a narrow context.

In addition, although Applicant submits that the techniques for applying dynamic gain flattening and optical transient suppression are well known in the art, Applicant argues that applying these techniques to *all* the signals at a given layer is not obvious (see Appeal Brief, last paragraph of pg. 5 ending on pg. 6). However, the benefits of these techniques are notoriously

well known in the art and a skilled artisan would have been motivated to apply these techniques as necessary in accordance with system tolerance and performance requirements. For example, if a signal was to be transmitted at an extremely long distance and high signal quality was required, a skilled artisan would have clearly recognized the need to include more compensation mechanisms of gain flattening and transient suppression in order to provide healthier signal at a better quality.

Furthermore, regarding the use of optical transient suppression and gain flattening, Applicant insists that "Examiner appears to be relying upon hindsight reasoning given the benefit of present application" (see Appeal Brief, lines 5-6 of pg. 6). However, the benefits of optical transient suppression and gain flattening were clearly well known in the art at the time of invention, so it would have been proper to apply the teaching and the techniques of transient suppression and gain flattening. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

David J. Lee

08 May 2006

Conferees:

Kenneth N. Vanderpuye, SPE

Jason Chan, SPE

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER

JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600